



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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OFFICE OF  
AIR AND RADIATION

Frank Marcinowski, Deputy Assistant Secretary  
Logistics and Waste Disposition Enhancements  
Office of Environmental Management  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, DC 20585

Dear Mr. <sup>Frank</sup> Marcinowski:

I am writing in response to the October 18, 2004, letter from Dr. Paul Detwiler, Acting Director of the Department of Energy's (DOE) Carlsbad Field Office (CBFO), in which DOE formally notified the Environmental Protection Agency (EPA) that DOE incorrectly disposed of certain waste from the Hanford site at the Waste Isolation Pilot Plant (WIPP). Dr. Detwiler's letter expanded upon the verbal notification provided to us on September 24, 2004, and provided additional information on the affected containers and their emplacement at the WIPP. The letter also described corrective actions proposed by DOE to ensure such a violation of EPA's waste characterization requirements does not recur.

The Agency has reviewed the proposed actions, and our decision regarding their acceptability is described below. Enclosure 1 provides a detailed chronology of events and our evaluation of these issues. We have largely concurred that DOE's proposed corrective actions are correctly aimed at the source of the compliance failure, and will provide assurance that such problems will not happen again at Hanford or any other WIPP waste generator site. Our concurrence, however, does not diminish our overall concern about the significance of the violation that occurred. Taken in conjunction with other past regulatory compliance issues related to DOE's waste characterization responsibilities for WIPP, this violation concerns the Agency and indicates the need for significant attention from DOE management to improve internal coordination and oversight.

Hanford Plutonium Finishing Plant - Mixed Oxides

Based on the information provided in the October 18 letter, we concur with DOE's assessment that mixed oxides are properly considered to be part of the debris waste stream at Hanford's Plutonium Finishing Plant (PFP), for which EPA fully approved waste characterization measures in August 2003. Thus, we find that the containers of mixed oxides were adequately characterized and emplaced. However, we emphasize that it is DOE's

responsibility to seek clarification on EPA's approvals in cases such as this, where our approval did not reflect DOE's waste stream designations.

### Hanford PFP Solid Waste

We do not believe that the PFP solid wastes improperly emplaced at WIPP constitute a threat to human health, to the environment or to the long-term performance of the WIPP repository. Based on this determination, the Hanford PFP solid waste may remain in WIPP while EPA undertakes a desk-top review of the acceptable knowledge (AK) information for the PFP solid wastes. EPA will conduct the AK evaluation for the Hanford PFP solid wastes in accordance with 40 CFR Part 194.8, including a published Federal Register Notice that announces EPA's activity and a 30-day public comment period. Should our review conclude that there are potential problems with the emplaced waste, we reserve the right to take further action related to the waste under our radioactive waste disposal regulations.

### Corrective Actions

In our initial assessment of the underlying causes for this violation, we have determined that the Hanford site operated according to its established procedures. That is, it sent only waste certified for disposal at WIPP by the DOE's Carlsbad Office. The primary failure lay with CBFO for failing, in its certification letter, to properly acknowledge and link to EPA's site approval process. Therefore, we believe that actions to prevent recurrence of this problem are most properly directed at DOE's internal site readiness and certification process led by CBFO. Such corrective actions will thus be applicable to, and provide assurance regarding compliance by, the entire system of DOE's WIPP waste generator sites.

To this end, DOE must make the following changes, as outlined in Dr. Detwiler's October 18 correspondence, to ensure proper coordination with EPA on waste characterization programs at WIPP waste generator sites:

- Impose new procedures for the creation, review and approval of the letters sent to sites authorizing them to begin the shipment of new categories of waste to WIPP;
- Develop a database to track correspondence and decisions regarding site audits and approvals;
- Obtain review and concurrence by EPA's Radiation Protection Division on certification letters prior to sending them to sites;
- Provide advance information to, and coordinate with EPA, in preparation for scheduled EPA inspections and audits. DOE must inform EPA of upcoming DOE audits, clarify the scope and focus of audits, and whether EPA approval is being sought for any waste characterization program elements. The schedule for such coordination is provided in Enclosure 2; it addresses the scope, timing, results and issues associated with inspections.

We believe that these actions constitute a significant improvement in DOE's procedures to adhere to EPA's site approval process for waste characterization programs. DOE must

provide written confirmation when the first two actions have been accomplished, as well as a description of how they have been implemented. In addition, we will evaluate DOE's progress toward implementing (and adhering to) the corrective procedures that are discussed in this letter when we conduct our annual audit of the CBFO Quality Assurance Program early next year.

#### Status of Hanford Waste Shipments

Until EPA completes a full evaluation of AK, our previous restriction on PFP solid wastes remains in place. Following our desk-top review, we will notify DOE, in writing of any approval or disapproval for this waste. Until such written approval is provided, DOE *is not* approved to ship and dispose at WIPP any Hanford PFP solid waste (S3000).

The shipment and disposal of mixed oxides and other debris waste (S5000) characterized at the Hanford PFP may resume. As we indicated earlier in this letter, we have determined that waste characterization procedures for those wastes are adequate, and have formally approved them. Nothing in the current situation leads us to reverse that determination.

Finally, waste characterization activities elsewhere at Hanford are not affected by our decisions regarding solid waste processed at the PFP. Waste characterization activities for transuranic waste at Hanford have been undertaken at three facilities: the Waste Receiving and Processing Facility (WRAP); the mobile Central Characterization Facility (CCP) operated at Hanford; and the PFP. For the purpose of our WIPP waste characterization requirements at 40 CFR 194.8, EPA has separately evaluated the equipment and procedures at each of these facilities. The waste improperly sent to WIPP was processed exclusively at the PFP. There are no indications that similar problems affect waste at the other facilities, and their current status is unaffected. In particular, the WRAP facility is approved to characterize debris waste for disposal at WIPP. We have inspected the CCP, but not yet approved it for WIPP waste characterization; the results of EPA's inspection are still pending, and no waste characterized by CCP-Hanford may be disposed at WIPP until we issue a written approval.

Notwithstanding this letter, EPA reserves the right to take any action pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, the Hanford Federal Facility Agreement and Consent Order or any other applicable legal authority, including without limitation, the right to seek injunctive relief and monetary penalties for any violations that may have occurred.

Thank you again for your prompt attention to this serious matter. We will continue to work with you to resolve these issues and quickly take the full and complete set of corrective actions to prevent such problems from occurring in the future. If you have questions, please contact Bonnie Gitlin, Acting Director of the Radiation Protection Division, at (202) 343-9290.

Sincerely,

A handwritten signature in black ink, reading "Elizabeth A. Cotsworth". The signature is fluid and cursive, with the first name "Elizabeth" and last name "Cotsworth" clearly legible.

Elizabeth A. Cotsworth, Director  
Office of Radiation and Indoor Air

cc: Lloyd Piper, DOE-CBFO  
Lynne Smith, DOE-EM  
Carl Edlund, EPA Region 6  
Nick Ceto, EPA Hanford  
Dave Bartus, EPA Hanford  
Jon Averback, EPA OGC  
Ron Curry, NMED

## Enclosure 1

### **Chronology and Assessment of Waste Characterization Violations for Hanford PFP Solid Waste**

#### Chronology of Events

The EPA first addressed waste characterization activities at Hanford's Plutonium Finishing Plant (PFP) at a June 2003 waste characterization inspection at the Hanford site. Based on the results of this inspection EPA approved waste characterization for debris waste from the PFP and allowed its disposal at WIPP (Letter of August 7, 2003; EPA Docket A-98-49).

In the same June 2003 inspection, EPA also evaluated waste characterization processes used for PFP solid waste. EPA inspected key components of the system of controls (radioassay, radiography, visual examination, and WIPP Waste Information System) for solid waste at the PFP. During this inspection, however, the facility was not prepared for EPA to evaluate the use of acceptable knowledge (AK) in characterizing solid wastes. Therefore, EPA did not examine the AK process and could not determine its adequacy. For this reason, our August 2003 letter to CBFO stated that "EPA has not approved acceptable knowledge for TRU solids, specifically ash and mixed oxides, characterized at the PFP facility. As a result, DOE may not dispose at the WIPP any ash and mixed oxides from the PFP facility."

On July 14, 2004, DOE issued a certification letter to Hanford regarding shipment and emplacement at WIPP of waste streams characterized and certified at the PFP. This letter did not reflect EPA's restriction on disposal of solid wastes from the PFP. Based on CBFO's certification letter, Hanford shipped to the WIPP 602 drums of PFP solids and 926 drums of mixed oxides over the ensuing two months.

#### Violation of EPA's Waste Characterization Requirements

Under Condition 3 of EPA's WIPP Certification Condition, and Sections 194.8 and 194.24 of the WIPP Compliance Criteria, DOE cannot certify any waste from TRU waste sites for disposal at the WIPP until EPA has approved the applicable waste characterization program. These requirements ensure that DOE can adequately measure and track the contents of all containers disposed at WIPP. CBFO's certification of Hanford PFP ash and mixed oxides for disposal at WIPP conflicts with the plain language of EPA's site approval and, thus, violates EPA regulations at 40 CFR 194.8 and 24.

DOE identified the potential conflict with EPA's regulations at the end of September 2004 and notified EPA. Shortly thereafter, Dr. Detwiler's letter of October 18 provided additional information on the affected drums and DOE's tentative actions to address the problem. Since the discovery of this error, DOE has voluntarily suspended further PFP solid waste shipments from Hanford to WIPP and has agreed to take steps to identify the cause of the error and prevent recurrence. However, significant quantities of this waste have already been emplaced at WIPP.

EPA's approach to address the shipment of unapproved Hanford PFP waste is two-fold. First, EPA must assess the AK process to determine whether the overall characterization process for the waste was adequate. This step is necessary to confirm compliance with our waste characterization requirements and ultimately, to ensure that the placement of the waste in WIPP will not adversely affect WIPP's performance or public health and the environment. Secondly, EPA will ensure that corrective procedures are in place to prevent a recurrence of this error.

### Mixed Oxides

EPA's August 2003 approval for some Hanford wastes excluded mixed oxides because it was EPA's understanding that mixed oxides are a solid waste and therefore lacked the required approval for the use of AK for waste characterization purposes. The October 18, 2004, letter clarified that DOE considers mixed oxides to belong to the debris waste category. EPA has reviewed the information regarding mixed oxides and concurs with DOE's designation that mixed oxides are properly part of the debris waste stream. The approximately 900 drums of PFP mixed oxides were fully characterized using the procedures approved by EPA for debris waste in our August 7, 2003, letter. We determine that they were adequately characterized and emplaced. Hanford PFP mixed oxides are thus contained within the scope of EPA's approval (Sept 2003) for Hanford.

While we can determine *post facto* that these wastes were properly characterized, it is troublesome that DOE did not clarify their status before shipment: whether or not EPA's understanding of the wastes' designation was accurate, their emplacement in WIPP violates the plain language of our approval letter. In such cases, it is DOE's responsibility to provide clarification and seek a change in EPA's approval.

### Hanford PFP Solid Waste

We do not believe that the solid wastes characterized at the Hanford PFP and improperly emplaced at WIPP (in violation of our site approval) constitute a threat to human health, to the environment or to the long-term performance of the WIPP repository. While EPA had not approved the use of AK for characterization of PFP solid wastes, we did inspect a number of waste characterization steps, including equipment and procedures (i.e., non-destructive assay and non-destructive examination) to measure the radionuclide and materials parameters of the containers; these procedures were found to be adequately designed and implemented. The PFP solid waste drums emplaced at WIPP were extensively characterized at Hanford using these approved procedures before being shipped for disposal. AK was not used to extrapolate or calculate radiological components in place of measurement. In addition, information about the waste was properly entered into the WIPP Waste Information System (WWIS). Thus, substantial information exists on the contents of these containers. Based on this information, EPA believes that the site has thoroughly characterized the PFP solid waste and expects that the waste will be shown to meet limits on radiological, physical, and chemical contents.

We, however, will complete an assessment of the AK documentation for this waste stream to confirm that the waste characterization procedures are technically sufficient and that

the container contents were properly measured and tracked. Even though DOE did not rely on AK for determining the physical and radiological characteristics for the PFP solid waste, we must review AK to determine its adequacy in verifying the waste pedigree and waste stream determination, and to approve its use for waste disposed at WIPP. EPA will conduct an evaluation of the AK information for the Hanford PFP solid wastes in accordance with 40 CFR Part 194.8, including a published Federal Register Notice that announces EPA's activity and with a 30-day public comment period. During this review EPA will assess the quality of the AK information for the Hanford PFP solid waste.

Because we have determined that the waste does not threaten public health at present, and is unlikely to affect WIPP's long-term performance, the Hanford PFP solid waste may remain in WIPP while EPA undertakes a desk-top review of the AK information for the PFP solid wastes. Should our review conclude that there are potential problems with the emplaced waste, we reserve the right to take further action related to the waste. The October 18, 2004, letter states that the panel containing the unapproved waste stream is expected to remain open at least until March 2005. We expect to complete our review well before that time, and we believe that the continued access to Panel 2 provides adequate flexibility to take additional action if warranted by the results of our review.

#### Underlying Causes and Corrective Procedures

As noted above, we do not believe that the unapproved waste from the Hanford PFP presents a threat to public health or the environment, in either the short- or long-term. Furthermore, we appreciate DOE's prompt notification and discussion on this issue. Nevertheless, this violation is of concern because it indicates a failure by DOE to fully understand, and to properly link its internal procedures to, EPA's site approval and oversight process for WIPP waste characterization.

I would like to emphasize that EPA evaluates waste characterization programs through site-specific inspections conducted under Section 194.8 of the WIPP Compliance Criteria. Our approvals (as appropriate) are based on the results of these inspections and conveyed in letters attached to the resulting inspection report. These letters and reports constitute the sole basis for our approvals; while we may consider information derived from DOE's internal audits, they do not substitute for our independent evaluation. If DOE is unclear on the scope of EPA's approval, DOE is responsible for seeking clarification from EPA.

In our initial assessment of the underlying causes for this violation, we have determined that the Hanford site operated according to its established procedures. That is, it sent only waste certified for disposal at WIPP by the DOE's Carlsbad Office. The primary failure lay with CBFO for failing, in its certification letter, to properly acknowledge and link to EPA's site approval process. Therefore, we believe that actions to prevent recurrence of this problem are most properly directed at DOE's internal site readiness and certification process led by CBFO. The corrective actions proposed in October 18, 2004 letter are consistent with this approach. Together with additional requirements imposed by us, we believe that they constitute a significant improvement in DOE's procedures to better understand and adhere to EPA's site approval process for waste characterization programs.

## Enclosure 2

### Inspection Coordination and Communication with EPA

Activity	Schedule	Purpose
<b><i>Pre-inspection Activities</i></b>		
Carlsbad Field Office (CBFO) provides Inspection Calendar to EPA Inspectors	When updated	For internal planning
Enter audit/approval information into DOE tracking database	When audit is scheduled	To ensure coordination with CBFO, waste generator sites and EPA
CBFO provides Audit Plan to EPA	6 weeks before the scheduled site audit	Notify EPA about the CBFO QA audit scope
EPA contacts National TRU Program (NTP) to inform of its inspection needs specific to 194.8 or 194.24 related inspections via a conference call	Within a week of receipt of the Audit Plan	Inform CBFO of elements specific to the EPA's 194.8 and/or 194.24 inspection
NTP provides site documents related to the inspection	At least a month before the inspection	Prepare FR notice and docket DOE documents
NTP arranges a conf. call between EPA, NTP, and site staff	Within one week of receipt of the site documents	Go over EPA questions to provide additional information concerning waste, assay equipment, etc.
EPA issues a FR notice announcing the inspection and availability of DOE documents in the EPA Docket	Up to 4 weeks before the inspection	Meet 194.8 requirement
NTP provides documentation identifying EPA-approved wastes and equipment	At least a month before the inspection	Give approval status of waste characterization systems/processes in use at the site and waste categories
CBFO informs EPA when a pre-audit conference is scheduled and provides an Agenda via email	A month before the inspection	Make EPA travel arrangements
CBFO confirms that inspection will occur on schedule via email	3 weeks before the scheduled inspection	Allow EPA not to issue a FR notice announcing the inspection date if the inspection period is to be changed
CBFO arranges a conf. call between EPA, CBFO technical and quality assurance (QA) staff, and site QA	2 weeks before the inspection	Inform EPA of deficiencies specific to the system of controls the site QA observed, NCRs and corrective actions written
Site/NTP provides a list of waste containers to EPA lead inspector if EPA determines a need for replicate testing	At least a week before the inspection	Select 3 waste containers (and 2 alternate drums) for EPA replicate testing to occur during the week of inspection. [Testing of two out of three containers may occur the week prior to inspection.]



<b>Activity</b>	<b>Schedule</b>	<b>Purpose</b>
<i>Activities during the inspection</i>		
EPA gives a daily assessment of their inspection findings/concerns to CBFO	At the daily closeouts during the inspection	As a courtesy, inform CBFO and site of EPA concerns/findings
<i>Post-inspection activities</i>		
CBFO QA provides the final site audit report to EPA	When finalized	Indicate the closure of corrective action reports (CARs)
CBFO QA provides EPA via email paper trail showing that the site has taken appropriate action to close CARs and CBFO approves the site's corrective actions.	When CBFO approves sites actions to close CARs	Inform EPA of the status of CARs resulting from past site QA audits
EPA issues a site inspection report discussing findings/concerns and whether a site response is necessary	When completed	Inform CBFO of EPA's decision concerning how site has performed and what actions are needed for EPA approval of site
EPA issues a letter to DOE that stipulates the scope and details of EPA's approval.	Upon satisfactory completion of issues	
DOE must obtain EPA review and concurrence of site certification letters	After EPA's written approval	To ensure coordination with CBFO, waste generator sites and EPA
Update audit/approval information in DOE tracking database	When status of EPA approval is known	To ensure coordination with CBFO, waste generator sites and EPA
Notify waste generator site of waste that is approved for shipment	After EPA's written approval.	Allows shipment of waste to WIPP